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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/702,218

10/30/2000

Arthur W. Wang

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11/19/2004

THE DIRECTV GROUP INC
PATENT DOCKET ADMINISTRATION RE/R11/A109
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EXAMINER

LEE, JOHN J

ART UNIT

PAPER NUMBER

2684

15

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/702,218

Applicant(s)

WANG, ARTHUR W.

Examiner

JOHN J LEE

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 45-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-11, 15-22, 24-31 and 45-52 is/are rejected.
- 7) ☒ Claim(s) 8, 23 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. In view of the Appeal Brief filed on August 23, 2004, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-7, 15-22, 24-31, and 45-49** are rejected under 35 U.S.C. 103(a) as being unpatentable over Castiel et al. (US Patent number 6,678,519) in view of Briskman et al. (US Patent number 6,564,053).

Regarding **claims 1, 16, and 24**, Castiel discloses that a system for providing at least near continuous broadcast service to a terrestrial receiver (Fig. 2 and abstract).

Castiel teaches that a plurality of satellites (100, 110 in Fig. 1), each satellite in an inclined, elliptical, geosynchronous orbit (abstract and Fig. 2), each satellite providing a portion of time of the at least near continuous broadcast service to the terrestrial receiver (104 in Fig. 2-2) (Fig. 1, 2, abstract, and column 9, lines 28 – 67 where teaches geosynchronous orbits provide a portion of time to broadcast multimedia service to terrestrial receiver). Castiel teaches that the plurality of satellites augments at least one legacy satellite (old or used satellite) in a geostationary orbit (column 3, lines 63 – column 4, lines 45 and Fig. 2-1, where teaches the ground communication station does not always communicate with the same satellite, and the system provides satellites, which are existing (used) satellites as true geosynchronous satellites, with very high elevation angles).

Castiel does not exactly disclose the limitation “legacy satellite in a geostationary orbit”. However Briskman teaches the limitation “legacy satellite (old or used satellite) in a geostationary orbit” (column 4, lines 61 – column 5, lines 10 and Fig. 7, 15, where teaches one of the geosynchronous orbits (could be legacy or existing or old satellite) that has been used and currently working on the sky). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Castiel system as taught by Briskman. The motivation does so would be to improve the continuous broadcasting service to customers and to achieve optimizing coverage of particular service area in direct broadcast satellite system.

Regarding **claims 2, 15, and 17**, Castiel discloses that a first satellite (110 in Fig. 1) actively servicing the terrestrial receiver (112 in Fig. 2-2) (column 8, lines 35 – 43),

and a second satellite (100 in Fig. 1), wherein an apparent position of the second satellite relative to the terrestrial receiver is substantially proximate the apparent position of the first satellite relative to the terrestrial receiver (column 10, lines 1 – 20 and Fig. 4) when the first satellite completes providing its portion of the broadcast service (column 9, lines 28 – column 10, lines 20 and Fig. 1, 4).

Regarding **claims 3, 18, and 27**, Castiel discloses that a track of the apparent position of each of the satellites relative to the terrestrial receivers when the satellite is providing its portion of the at least near continuous broadcast service is substantially closed loop (column 5, lines 16 – 64 and Fig. 1, 2).

Regarding **claims 4, 19, and 28**, Castiel discloses that the terrestrial receiver comprises an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellites (column 11, lines 63 – column 12, lines 22 and Fig. 2, 4).

Regarding **claims 5, 20, and 29**, Castiel discloses that the track of the apparent position of each of the satellites substantially corresponds to a sensitivity pattern of an antenna at the terrestrial receiver (column 11, lines 63 – column 12, lines 22 and Fig. 2, 4).

Regarding **claims 6, 21, and 30**, Castiel discloses that a track of the apparent position of each of the satellites relative to the terrestrial receivers when the satellite is providing its portion of the at least near continuous broadcast service is substantially teardrop-shaped (Fig. 6, 7 and column 14, lines 6 – 60).

Regarding **claims 7, 22, and 31**, Castiel and Briskman disclose all the limitation, as discussed in claim 1. However, Castiel does not specifically disclose the limitation “an orbit inclination **approximately** equal to 50 degrees and eccentricity **approximately** equal to 0.13”. However, Briskman teaches the limitation “an orbit inclination approximately equal to 50 degrees and eccentricity approximately equal to 0.13” (column 2, lines 5 – 19, where teaches the inclination of the satellites is generally chosen between about 40 degrees and about 80 degrees and eccentricity range is about 0.15 to about 0.30). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Castiel system as taught by Briskman. The motivation does so would be to improve the satellite pattern for continuous broadcasting service and optimizing coverage of particular service area in direct broadcast satellite system.

Regarding **claim 25**, Castiel and Briskman disclose all the limitation, as discussed in claims 1 and 2.

Regarding **claim 26**, Castiel and Briskman disclose all the limitation, as discussed in claims 1 and 2.

Regarding **claim 45**, Castiel and Briskman disclose all the limitation, as discussed in claim 1. Furthermore, Castiel further discloses that a receiver station antenna (262 in Fig. 2-2) that can communicate with said at least one satellite and at least one of said plurality of satellites during an active period without tracking (column 9, lines 1 – 27 and Fig. 1, 2, where teaches remote user terminal has a antenna which is pointed at the satellite and received by satellite’s phased array antenna, more specifically, the satellite’s ground tracking antenna transmits broadcast signal to remote user terminal and the

remote users terminal's antenna, that is pointed at the satellite, receives the signal without tracking). Castiel teaches that a gateway (ground station (104 in Fig. 2-2) having a tracking antenna (212 in Fig. 2-2) to track said plurality of satellites (Fig. 2, 4, and column 11, lines 63 – column 12, lines 22, where teaches the ground tracking antenna to continually follow the same path, starting at a beginning point, tracking the satellite, and ending at the coalesce point).

Regarding **claim 46**, Castiel and Briskman disclose all the limitation, as discussed in claims 3 and 45. Furthermore, Castiel further discloses that the apparent position of the active satellite substantially overlaps another one of the plurality of satellites that is beginning the active period (6, 7, column 14, lines 6 – 67, and column 7, lines 14 – 22).

Regarding **claim 47**, Castiel discloses that a beamwidth of said tracking antenna of said gateway is sufficient to encompass both said active one and said another one of said plurality of satellites (Fig. 4 and column 12, lines 5 – column 13, lines 4).

Regarding **claim 48**, Castiel discloses that apparent positions of the plurality of satellites are spatially separated from the apparent position of the at least one satellite in geostationary orbit to avoid interference (abstract, Fig. 4, 8, and column 14, lines 19 – 60).

Regarding **claim 49**, Castiel and Briskman disclose all the limitation, as discussed in claims 4 and 45. Furthermore, Castiel further discloses that at least one satellite in geostationary orbit is at least thirty degrees (column 15, lines 1 – 14 and Fig. 8).

4. **Claims 9-11 and 50 – 51** are rejected under 35 U.S.C. 103(a) as being unpatentable over Castiel in view of Anderson (US Patent number 6,778,810).

Regarding **claim 9**, Castiel discloses all the limitation, as discussed in claims 1 and 4. However, Castiel does not specifically disclose the limitation “an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellite”. However, Anderson discloses the limitation “an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellite” (Fig. 2, 4 and column 5, lines 4 – column 6, lines 16, where teaches a receiver station has an antenna having a sensitivity characteristic representing to track the position of satellite for receiving satellite signal). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Castiel system as taught by Anderson. The motivation does so would be to enhance the satellite signal adaptability in broadcast satellite system.

Regarding **claims 10 and 11**, Castiel does not specifically disclose the limitation “the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point”. However, Anderson discloses the limitation “the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point” (Fig. 2, 4 and column 4, lines 61 – column 5, lines 30, where teaches focus of the parabolic reflector, which shapes for avoid to account for the offset, having reflects and focuses the energy from the transmitter and the angle positions the low noise block out of the way to minimize attenuation of the incoming signal along the

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antenna centerline). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Castiel system as taught by Anderson. Doing so would enhance the broadcast signal adaptability in satellite communication system.

Regarding **claim 50**, Castiel and Briskman disclose all the limitation, as discussed in claims 1, 3, and 4. However, Castiel does not specifically disclose the limitation “a receiver station having relatively high gain, fixed antenna capable of communication with said at least one satellite in a geostationary orbit and an active one of said augmenting constellation of satellites”. However, Anderson discloses the limitation “a receiver station having relatively high gain, fixed antenna capable of communication with said at least one satellite in a geostationary orbit and an active one of said augmenting constellation of satellites” (column 4, lines 40 – 60, Fig. 1, 3, 5, and column 6, lines 13 – 60, where teaches the receiver station having a highly gain and fixed antenna communicating with a geostationary satellite and other satellites). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Castiel system as taught by Anderson. The motivation does so would be to achieve an optimum broadcast signal adaptability in satellite communication system.

Regarding **claim 51**, Castiel, Briskman, and Anderson disclose all the limitation, as discussed in claims 48 and 50.

Regarding **claim 52**, Castiel, Briskman, and Anderson disclose all the limitation, as discussed in claims 6 and 50.

Allowable Subject Matter

5. Claims 12 – 14 are allowed.

Claims 12 – 14 are allowable over the prior art of record because a search does not detect the combined claimed elements as set forth in the claims 12 – 14.

As recited in independent claim 12, none of the prior art of record teaches or fairly suggests that the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point, and wherein the head is disposed offset from the focal line and the reflector is approximately 18 centimeters in diameter, and the head is disposed approximately 7 inches offset from the focal point and approximately 4 inches offset from the focal line, and together with combination of other element as set forth in the claims 12 – 14. Therefore, claims 12 – 14 are allowable over the prior art of records.

6. Claims 8, 23, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to show “the satellite orbits are a period approximately equal to 86164 seconds, an altitude at perigee approximately equal to 30305 kilometers, and an altitude at apogee approximately equal to 41268 kilometers” as specified in the claims 8, 23, and 32.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stuart et al. (US Patent number 5,678,175) discloses Satellite System Using Equatorial and Polar Orbit Relays.

Wilson (US Patent number 6,160,993) discloses Command and Control of Remote Systems Using Low Earth Orbit Satellite Communications.

Information regarding...Patent Application Information Retrieval (PAIR) system... at 866-217-9197 (toll-free)."

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
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or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label
"PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(703) 306-5936**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Nay**

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Maung, can be reached on (703) 308-7745. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L

November 11, 2004

John J Lee


NAY MAUNG
SUPERVISORY PATENT EXAMINER